

SiPEED

# AI+IoT RTOS+Linux All-Round Module

Tri-Core RISC-V | Tri-Mode Wireless



- RV64GCV + RV32GCP + RV32EMC
- NPU 100GOPS • 64MiB Memory • Linux
- WiFi/BLE/Zigbee • TinyMaix • MaixHub
- Script Programming

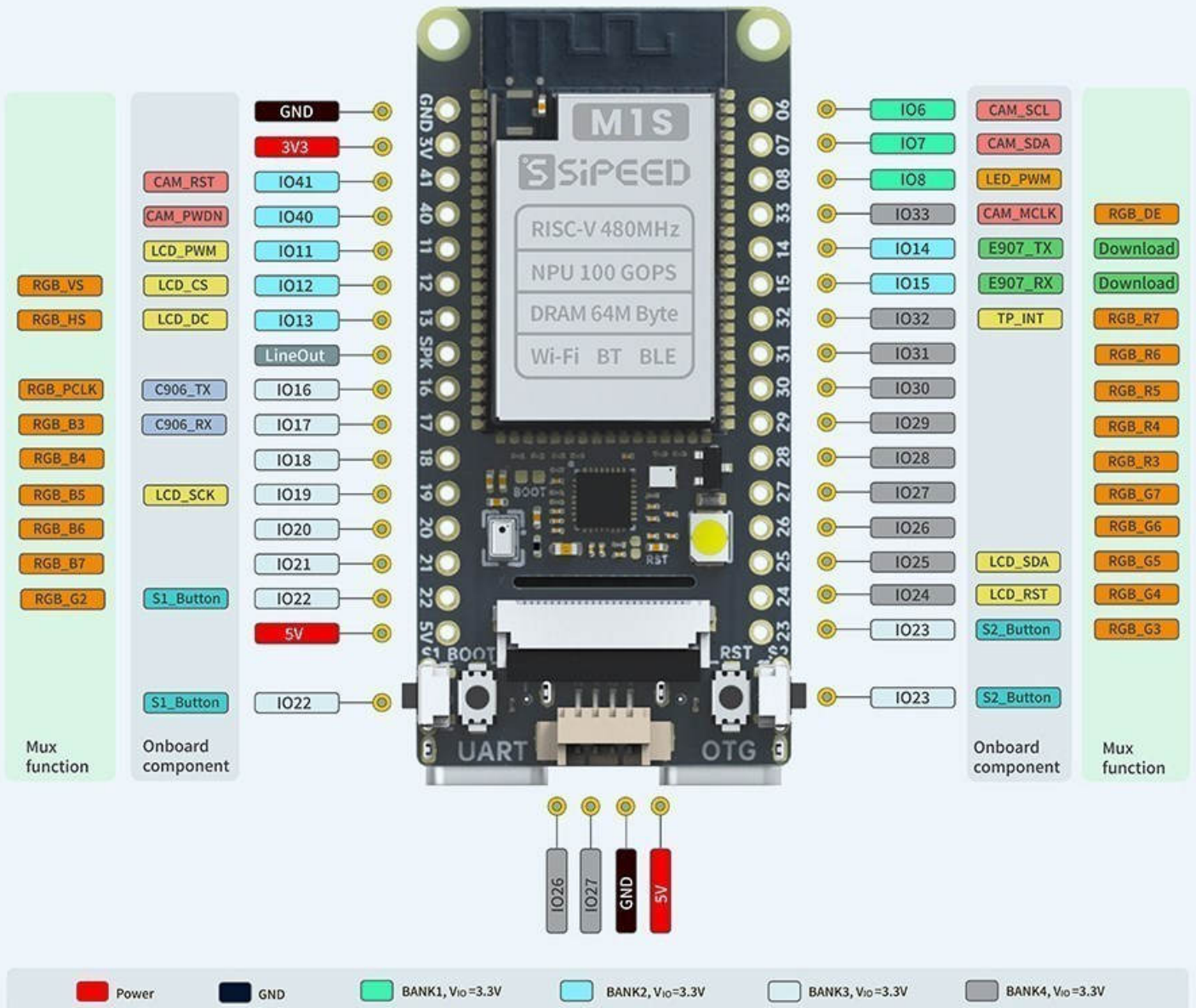
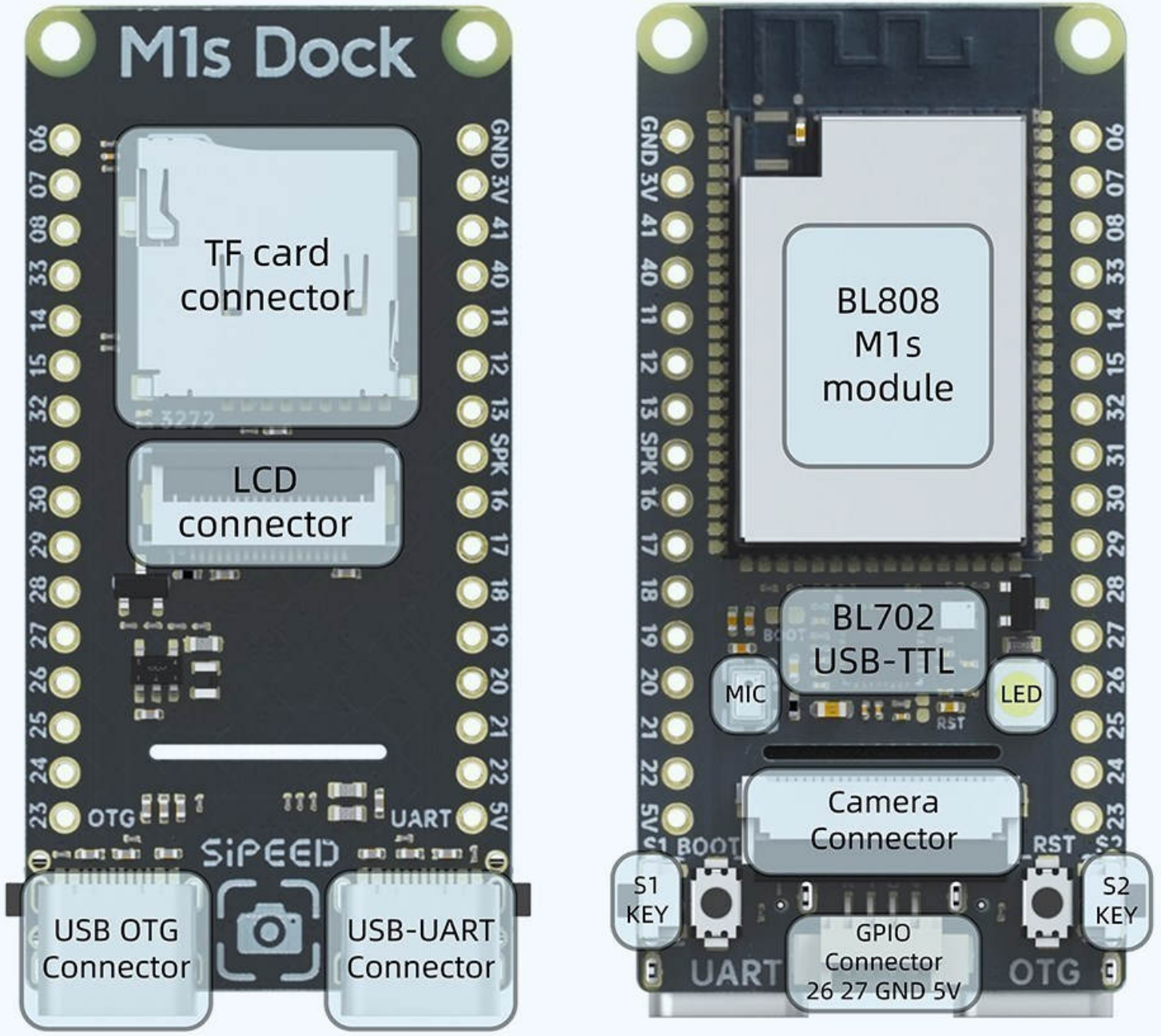
# INTRODUCTION



Items	M1(K210)	ESP32-S3-WROOM-1-N16R8	M1s(BL808)
CPU	400M RV64x2	240M Xtensa LX7 x2	<b>480M RV64GCV+</b> <b>320M RV32GCP+</b> <b>160M RV32EMC</b>
RAM	8MB SRAM	512KB SRAM+ 8MB psram	<b>768K SRAM +</b> <b>64MB UHS PSRAM(2000M)</b>
Flash	16MB	16MB	16MB
System	FreeRTOS/No-mmu Linux	RTOS	<b>FreeRTOS/Linux</b>
NPU	<b>230GOPS</b> with limited OPS	—	100GOPS with rich OPS
Camera	DVP,up to VGA	DVP	<b>MIPI+DVP, up to 1080P H264</b>
Display	SPI/8bit MCU LCD	<b>SPI/8bit MCU/RGB LCD</b>	<b>SPI/8bit MCU/RGB LCD</b>
Audio	I2S	I2S	<b>I2S + Analog Audio Input/Output</b>
Wireless	—	WIFI+BLE	<b>WIFI+BLE+Zigbee</b>
USB	—	USB1.1 OTG	<b>USB2.0 OTG HS</b>
Accelerator	FFT	—	Scaler,OSD,MJPEG,G2D, <b>H264</b>
Peripheral	UART,IIC,SPI	UART,IIC,SPI,SDIO,ADC	UART,IIC,SPI,SDIO,ETH(RMII),ADC/DAC,...
Size	25.4x25.4mm	<b>25.5x18mm</b>	31x18mm
Price	\$6	<b>\$4.3(digikey)</b>	\$6

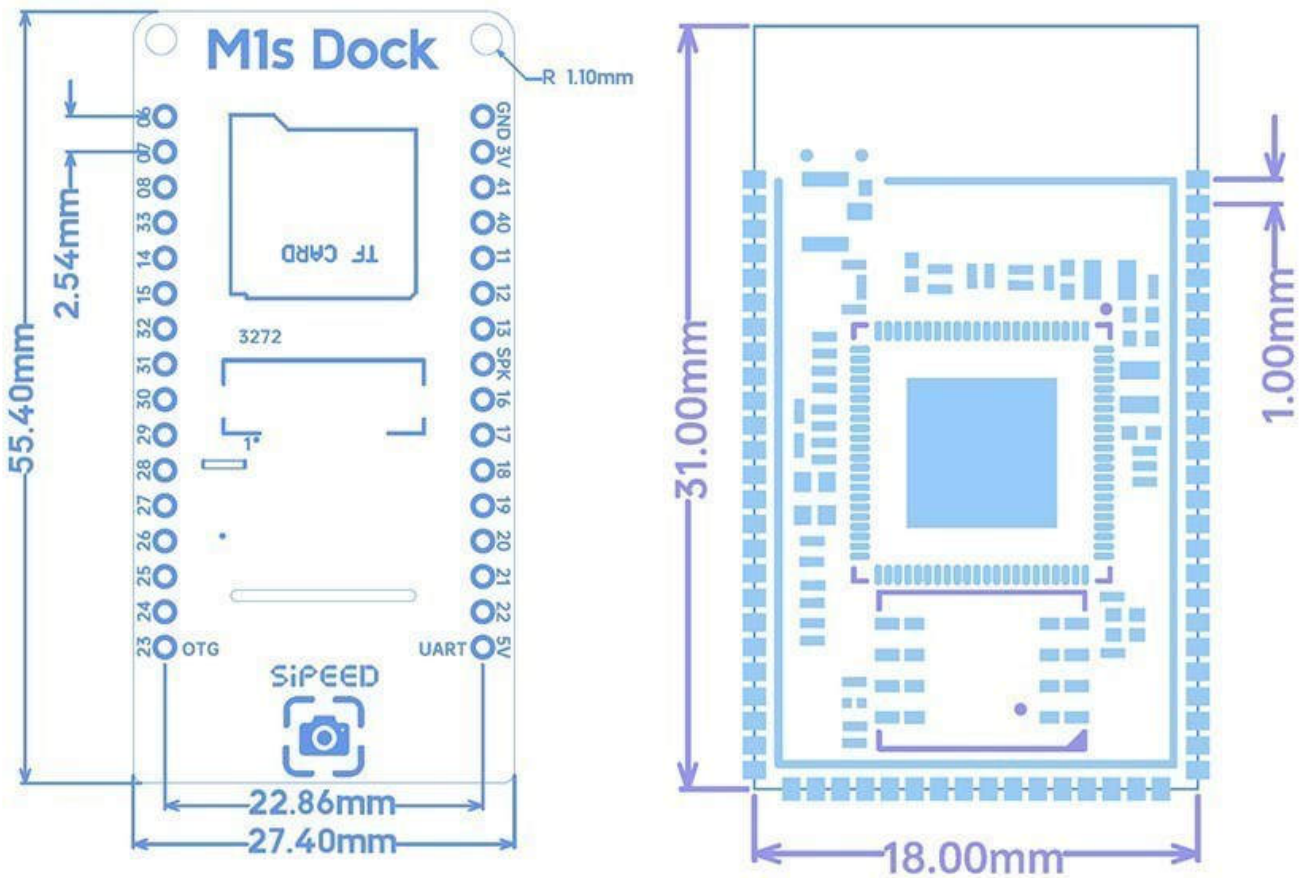
Items	M1 Bit	ESP32-CAM	M1s Dock
Core	K210	ESP32	M1s(BL808)
Camera	0.3MP DVP GC0328	2MP DVP OV2640 with flash LED	<b>2MP MIPI OV2685(two-side)</b> with flash LED
LCD	2.4inch 320x240	—	1.69inch 280x240 with <b>CTP</b>
Audio	I2S MEMS MIC	—	Analog MEMS MIC + <b>LineOut</b>
MicroSD Slot	SPI mode	SPI mode	<b>SDHC/JTAG</b> mode
Buttons	RESET+BOOT	RESET	RESET+BOOT+2xUSER
USB	1xUSB-to-Serial	—	1xUSB-to-Dual-Serial+ <b>USB-OTG-HS</b>
Other	—	—	4pin 1.25 connector(UART)
Pins	2x18 pins, breadboard-friendly	2x8pins	2x16 pins, breadboard-friendly
JTAG	—	—	Optional TF2JTAG
enclosure	—	—	Optional
Size	25x53mm	27x41mm	27x55mm

# HARDWARE DIAGRAM



Visit [wiki.sipeed.com/en/m1s#dock](http://wiki.sipeed.com/en/m1s#dock) for more details

# DIMENSION



# PRECAUTIONS



## 1 Electrostatic Protection:

Avoid static electricity hitting the PCBA. Please release the static electricity of hand before touching PCBA

## 2 Tolerance Voltage:

The operating voltage of each GPIO is shown in schematic, be sure not make the actual operating voltage of the GPIO exceed the rated value, otherwise this will destroy PCBA

## 3 FPC Connector:

When connecting with FPC connector, make sure the cable is in correct direction and connected rightly

## 4 Remove and Plug:

Please shut down device before connecting to others

## 5 Avoid short circuit:

Be sure avoid any liquid or metal touching board when using this board, which will cause short circuit and destroy PCBA

# COMMUNITY



Welcome to join our community, here we can communicate with many people who have the same interests, share results and thoughts with each other.

The screenshot shows a GitHub repository page for 'speed / M1s\_BL808\_example'. The top part of the page displays a chat window with a group chat titled 'speed'. The chat messages discuss the repository's purpose and the user's contribution. Below the chat, the repository's file structure is visible, listing various demo files such as 'audio\_recording', 'camera\_bypass\_test', 'camera\_dump', 'camera\_streaming\_through\_wifi', 'cli\_demo', 'fast\_demo', 'gpi\_demo', 'hello\_world', 'cli\_test', 'image\_processing\_demo', and 'fly\_demo'. Each file entry includes the commit message and the time since the last update.

The screenshot shows the MaixHub website and a Wiki page for the M1s Module. The MaixHub website features a navigation bar with 'Home', 'Model Zoo', 'Model Training', and 'Toolbox'. The main content area includes the MaixHub logo, the tagline 'Model online training platform for edge devices', and statistics: '10000+ Community members', '50+ Models quantity', and '10+ Hardware support'. A 'Register now!' button is prominently displayed. The Wiki page, titled 'M1s Module', provides a summary of the module, stating it is an AIoT module based on the BM38 of Rockchip Ltd. and contains 3 cores (two Cortex-A73 and one Cortex-M4). It also lists the module's features and a link to the hardware module page.